**Domain: Number and Operations in Base Ten Standard Code: 2.NBT1,2,3,4 Teacher Name: Logan**

Adapted from: Smith, Margaret Schwan, Victoria Bill, and Elizabeth K. Hughes. “Thinking Through a Lesson Protocol: Successfully Implementing High-Level Tasks.”

*Mathematics Teaching in the Middle School 14* (October 2008): 132-138.

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| **PART 1: SELECTING AND SETTING UP A MATHEMATICAL TASK** | |
| What are your mathematical goals for the lesson? (i.e., what do you want  students to know and understand about mathematics as a result of this lesson?) | Students will understand place value.  Count within 1000  Compare two three-digit numbers based on meanings of the hundreds, tens, and ones digits, using  >, =, and < symbols to record the results of comparisons. |
| * What are your expectations for students as they work on and complete this task? * What resources or tools will students have to use in their work that will give them entry into, and help them reason through, the task? * How will the students work—   independently, in small groups, or in pairs—to explore this task?   * How will students record and report their work? | **Expectations:**   * Students will compare two sets of numbers using comparison symbols. * Students will use different strategies to solve a problem. * Students will create representation to show their reasoning.   **Resources:**   * Students can use base ten blocks * Students will need hundreds charts * Paper and math journals   **Grouping:**   * Students will work in pairs or small groups   **Recording/Reporting:**   * Record thinking in math journals * Share on document camera |
| How will you introduce students to the activity so as to provide access to *all*  students while maintaining the cognitive demands of the task? | Read the book “How Many seeds in a Pumpkin.”  Display the task on the smartboard. Read the task with the students. |

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| **PART 2: SUPPORTING STUDENTS’ EXPLORATION OF THE TASK** | |
| As students work independently or in small groups, what questions will you ask to—   help a group get started or make progress on the task?   focus students’ thinking on the  key mathematical ideas in the task?   assess students’ understanding of  key mathematical ideas, problem- solving strategies, or the representations?   advance students’ understanding  of the mathematical ideas? | * What do you know from the problem? * What do you not know? * What are you thinking? * How are you going to show your reasoning? * What operations could you use? * Explain your process; how do you know your answer is correct? * Does everyone in the group agree? |
| How will you ensure that students remain engaged in the task?   What assistance will you give or what questions will you ask a  student (or group) who becomes  quickly frustrated and requests more direction and guidance is  solving the task?   What will you do if a student (or group) finishes the task almost  immediately? How will you  extend the task so as to provide additional challenge? | If students are stuck, assess where the frustration is, and refer back to the above questions above, use manulatives, create a drawing.  If students finish early, add extension:  **Extensions:**   * Compare Brittany’s and Robert’s seeds. Use <, >, = signs. |

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| **PART 3: SHARING AND DISCUSSING THE TASK** | |
| How will you orchestrate the class discussion so that you accomplish your mathematical goals?   Which solution paths do you want to have shared during the  class discussion? In what order will the solutions be presented? Why?   What specific questions will you ask so that students will—  1. make sense of the  mathematical ideas that you want them to learn?  2. expand on, debate, and question the solutions being shared?  3. make connections among the different strategies that are presented?  4. look for patterns?  5. begin to form generalizations?  What will you see or hear that lets you know that *all* students in the class  understand the mathematical ideas that  you intended for them to learn? | Teacher will observe students while working. Make a note of which students should present their solutions.  What do you want students to share?   * Reasoning * Justification * Conclusion   What order do you want students to present?   * Choose groups that have solved the problem differently? * Choose groups that have used different combinations of coins?   Discussion Questions   * How did you know when to add or subtract? * What manipulatives did you use? * How did you use the base 10 blocks, if you did use them?   How will you know students have achieved the learning outcomes?   * Student’s reasoning’s lead them to an accurate solution. * By listening to the students mathematical discourse. * Student’s ability to use comparison symbols correctly. |

**Brittany and Robert went to the pumpkin patch to get pumpkins to carve. Brittany’s pumpkin had 295 seeds. Brittany’s pumpkin had 16 more seeds than Robert’s.**

1. **How many seeds does Robert’s pumpkin have?**
2. **How many seeds do they have all together?**
3. **Write the total number of seeds as many ways as you can.**

**Extension: Compare Brittany’s and Roberts seeds. Use <, >, = signs.**